narrower, and the marginal striæ between the coxæ are more sinuous.

Hab. Marcopata, Peru. Many examples.

Pachylopus lepidulus, Br.

This species has been found in some numbers by Mr. J. J. Walker at Wellington, Westport, Sumner, New Brighton, and Timaru in New Zealand. It has similar habits to those of the European *P. maritimus*, Steph., and has one curious character—the club of the antenna is emarginate at the apex.

EXPLANATION OF PLATE VI.

Fig. 1. *Niponius canalicollis*, Lew. (Ann. & Mag. N. H. 1901, viii. p. 370).
Fig. 2. ,, *parvulus*, Lew. (Ent. Month. Mag. xxix. p. 184, 1893).
Fig. 3. ,, *Andrewesi*, Lew. (*t. c.* p. 183).
Fig. 3 *a* shows the form of prosternal striæ.
Fig. 4. *Niponius striaticeps*, Lew.
Fig. 5. *Enicosoma vespertinum*, Lew.
Fig. 5 *a* shows the facial outline.
Fig. 6. *Orectoscelis humeralis*, Lew. (Ann. & Mag. N. H. 1903, xii. p. 427).
Fig. 7. *Stenotrophis cavifrons*, Lew. (*op. cit.* 1902, x. p. 233).

XXII.—*A Revised Synopsis of the Tsetse-Flies* (*Genus* Glossina, *Wied.*), *with Notes on* Glossina tachinoides, *Westwood.* By Ernest E. Austen.

In the writer's Monograph *, published last year, seven species of the genus *Glossina* were recognized and described. As was only to be expected, the increased attention paid to the tsetse-flies of late, due in great measure to the identification by Colonel David Bruce of one of the species (*Glossina palpalis*, Rob.-Desv.) as the active agent in the dissemination of the dread disease of Tropical Africa known as Sleeping-Sickness, has led to the collecting of these insects in greater numbers. The result is that it is now possible to form a somewhat clearer view of the different species and their characteristics than was feasible at the time that the Monograph was written, when the amount and condition of the material available for examination left much to be desired. The conclusions now arrived at are embodied in the amended synopsis of species printed below.

* 'A Monograph of the Tsetse-Flies [Genus *Glossina*, Wiedemann]: based on the Collection in the British Museum.' By Ernest Edward Austen. London: Printed by Order of the Trustees. 1903.

Synopsis of Species of the Genus Glossina.

1. Hind tarsi entirely dark, or at least all the joints more or less dark (in the ♀ of *Gl. tachinoides* the basal half of the first joint and the extreme bases of the two following joints are usually pale) ..... 2.
   Hind tarsi not entirely dark; last two joints alone dark, remainder pale ..... 4.
2. Ground-colour of abdomen ochraceous buff, with interrupted dark brown transverse bands, and sharply defined pale hind borders to the segments; a very conspicuous square or oblong pale area in the centre of the second segment: small species, not exceeding 8 mm. in length (exclusive of proboscis), ♂ considerably smaller ..... *tachinoides*, Westw.
   Abdomen not so marked, very dark, hind borders of segments if lighter extremely narrow and cinereous; pale area in centre of second segment usually triangular, with apex directed backwards and continued into a cinereous median stripe: larger species .... 3.
3. Third joint of antennæ dusky brown to cinereous black ..... *palpalis*, Rob.-Desv.
   Third joint of antennæ pale (orange-buff) .... *pallicera*, Bigot.
4. Large species: length at least 11 mm. ($5\frac{1}{4}$ lin.), wing-expanse (measured from tip to tip, when wings are set at right angles to body) at least 25 mm. ($11\frac{3}{4}$ lin.) ..... 7.
   Smaller species: length rarely reaching 11 mm. ($5\frac{1}{4}$ lin.), often considerably less; wing-expanse not exceeding 25 mm. ($11\frac{3}{4}$ lin.) .. 5.
5. Last two joints of front and middle tarsi with sharply defined dark brown or black tips .. 6.
   Last two joints of front and middle tarsi without sharply defined dark brown or black tips; front and middle tarsi entirely yellow, or last two joints of former faintly tipped with pale brown ..... *pallidipes*, Austen.
6. Generally distinctly larger; head wider; front darker and narrower in both sexes, sides parallel in ♂; abdominal bands deeper, leaving hind margins of segments only narrowly pale; hypopygium in ♂ smaller, darker, and more hairy; tip of ♂ abdomen more thickly clothed laterally with short black hair, bristles on sixth segment finer and less prominent ..... *longipalpis*, Wied.
   Usually smaller; head narrower; front paler and wider; eyes in ♂ as well as in ♀ distinctly converging towards vertex; abdominal bands less deep, pale hind margins of segments therefore deeper; hypopygium in ♂ larger, paler, somewhat more oval in outline, and clothed with fewer fine hairs; tip

of ♂ abdomen less hairy laterally; bristles on sixth segment in ♂ stouter and more conspicuous ..... *morsitans*, Westw.

7. Dorsum of thorax with four sharply defined small dark brown oval spots, arranged in a parallelogram, two in front of and two behind transverse suture; bulb at base of proboscis brown at the tip ..... *longipennis*, Corti.

Dorsum of thorax without such spots, though with more or less distinct longitudinal stripes; bulb at base of proboscis not brown at the tip ..... *fusca*, Walk.

In the Monograph already referred to, *Glossina tachinoides*, Westwood, was regarded by the writer as a variety of *Gl. palpalis*, Rob.-Desv.* Within the last few days, however, the British Museum has received from Mr. W. F. Gowers a series of fifty tsetse-flies from the Benue River, Northern Nigeria, where they were collected by the donor during a journey down the river in a canoe in the latter half of May and beginning of June of the present year. In general appearance these specimens closely resemble small individuals of *Gl. morsitans*, but may be at once distinguished from this species by their dark hind tarsi. On comparison with the type of *Gl. tachinoides*, Westw.†, now in the collection of the Hope Museum, Oxford, not only were Mr. Gowers's specimens found to be specifically identical with it, but the examination of this fine series showed that *Gl. tachinoides* must be restored to specific rank, as a near ally of *Gl. morsitans*, Westw. Except as regards the colour of the hind tarsi, *Gl. tachinoides*, which is the smallest of all the tsetse-flies, is not closely related to *Gl. palpalis*. The forms previously regarded by the writer as constituting a variety of *Gl. palpalis*, Rob.-Desv., and designated by him var. *tachinoides*, Westw., must now be considered a variety of *palpalis*, which may for the present remain unnamed. The British Museum also possesses two other specimens—one from Old Calabar, May 14, 1900 (*Dr. Annett*), the other from Benin (*A. Millson*)—which appear to represent a second variety of *Gl. palpalis*. In the colour of the abdomen, at any rate, this second variety presents a certain approximation to *Gl. pallicera*, Bigot.

Quite recently *Gl. tachinoides*, Westw., has been redescribed by Dr. E. Brumpt, of the Laboratoire de Parasitologie, Paris, under the name *Glossina Decorsei*. An examination of

* *Cf. op. cit.* p. 74.

† This type is a mere fragment, but fortunately sufficient remains for purposes of identification.

specimens kindly submitted to the writer by Dr. Brumpt himself and also by Prof. Mesnil, of the Institut Pasteur, leaves no doubt of their identity. The synonymy of *Gl. tachinoides* is therefore as follows:—

Glossina tachinoides, Westw.

Glossina tachinoides, Westwood, Proc. Zool. Soc. Lond. pt. xviii. p. 267, pl. xix. fig. 2 (1850); Ann. & Mag. Nat. Hist. ser. 2, vol. x. p. 147 (1852).

Glossina Decorsei, Brumpt, Comptes rendus des séances de la Société de Biologie (Séance du 16 avril, 1904), t. lvi. p. 628.

Dr. Brumpt's specimens were obtained not long ago by Dr. Decorse in the basin of the River Shari and on the shores of Lake Chad, into which the river falls. Seven of the series collected by Dr. Decorse have been presented to the British Museum by Prof. Mesnil and Dr. Brumpt; the National Collection has also received a single specimen of *Gl. tachinoides* from the neighbourhood of Wushishi, Kadima River Valley, N. Nigeria, where it was obtained in the beginning of March, 1904, by Dr. S. H. Jones.

The following interesting field-notes have been kindly supplied to the writer by Mr. Gowers:—"*Glossina tachinoides* is found along the course of the Benue River between Lau and Lokoja. No horses or cattle can be kept in this area, except in one or two small spots. Above Lau, however, the river-banks are swarming with cattle, and there are large encampments of herdsmen in the dry season. After the rains have commenced the fly is present on the river in sufficient numbers to be an annoyance to travellers, and it continually bites the canoe-men. In the dry season, however, which lasts from October to April, it is much less numerous.

"The game found on the Benue River in the area in question, and on which the fly probably feeds, consists chiefly of *Kobus kob*. On the banks of the river this is almost the only species, and it is very numerous indeed. West-African buffalo, waterbuck, and reedbuck are found in the swamps near the river; but in the Benue Valley there are, in the immediate vicinity of the river, more kob than specimens of all the other species of game put together."

According to Brumpt (*loc. cit.* p. 629), in the basin of the Shari River and on the shores of Lake Chad *Gl. tachinoides* appears to be confined to the water's edge.

From Mr. Gowers's statements there can be little doubt that *Gl. tachinoides*, like *Gl. morsitans*, *pallidipes*, and *longipennis*, and possibly other species as well, is capable of

carrying *Trypanosoma Brucei*, the hæmatozoon causing the fatal malady among domestic animals known as tsetse-fly disease or Nagana. Brumpt is inclined to think that Sleeping-Sickness may also be transmitted by several species of tsetse-flies, and the mere possibility that this may ultimately prove to be the case lends peculiar importance to the bionomics of these interesting Diptera.

XXIII.—*Description of a new Fish of the Genus* Alestes *from Natal.* By G. A. Boulenger, F.R.S.

Alestes natalensis.

Depth of body equal to length of head, $3\frac{3}{4}$ times in total length. Head twice as long as broad, once and $\frac{1}{4}$ as long as deep; snout rounded, not projecting beyond lower jaw, $\frac{2}{3}$ diameter of eye, which is 3 times in length of head; adipose eyelid feebly developed; interorbital width $\frac{1}{3}$ length of head; maxillary not reaching to below anterior border of eye; 16 teeth $(\frac{8}{8})$ in the upper jaw; lower border of second suborbital as long as eye. Gill-rakers long and slender, 21 or 22 on lower part of anterior arch. Dorsal II 8, above ventrals, equally distant from centre of eye and from root of caudal; first branched ray nearly as long as head. Adipose fin small, twice and a half as far from rayed dorsal as from caudal. Anal III 19, longest ray nearly half length of head. Pectoral $\frac{3}{4}$ length of head, not reaching base of ventral. Caudal deeply forked. Caudal peduncle once and a half as long as deep. Scales $33\ \frac{5\frac{1}{2}}{3\frac{1}{2}}$, 2 between lateral line and root of ventral. A blackish lateral stripe, extending to the median rays of the caudal fin.

Total length 85 millim.

Two specimens from near Durban, received from Mr. F. W. Quekett.

Nearest ally *A. lateralis*, Blgr., from Lake Dilolo, Katanga, with which species it may ultimately have to be united. No *Alestes* has hitherto been recorded from south of the Zambesi.

XXIV.—*On some small Mammals collected by Mr. A. M. Mackilligin in the Eastern Desert of Egypt.* By Oldfield Thomas.

Mr. Arthur M. Mackilligin has recently collected some small mammals in the eastern desert of Egypt, near the Soudan frontier, about lat. 22° and long. 35°, and these prove